



Comprehensive Healing Rate: Standardization and transparency in wound outcome reporting using a modified intent-to-treat framework

Objective

To report the findings of a study of a standardized aggregate wound outcome reporting methodology using a modified intent-to-treat framework.

Introduction and background

Publicly reported wound care center healing rates have been the topic of considerable discussion. Critics argue that variability in exclusion criteria result in outcomes that are not comparable across care venues (Fife, et al., 2017¹). In response to calls for greater transparency, Healogics® partnered with faculty from leading medical institutions to conduct a large-scale analysis of wound outcomes using a modified intent-to-treat framework (Ennis, et al., 2017²). The primary aim of the study was to create a standardized aggregate methodology for reporting wound outcomes. A secondary aim was to compare outcomes from over 600 community-based wound care centers to outcomes from a full-time academic clinical wound care team.

As a result of the study, published in *Wound Repair and Regeneration*, Healogics continues to utilize a comprehensive healing rate as part of clinical reporting in conjunction with the standard healing rate. Whereas the standard healing rate excludes patients who did not complete treatment and palliative patients, the comprehensive healing rate uses a modified intent-to-treat framework which includes all non-consultation non-active wounds allowing for aggregate comparison across venues.

Data and methods

Cohort of Healogics Wound Care Centers retrospective data, including wound characteristics, patient demographics and final disposition, was collected from 626 outpatient Wound Care Centers nationwide between January 1, 2014 and

November 1, 2015. All wounds that met the qualifying inclusion criteria were included in the de-identified file; no other exclusions were applied. A final sample of 1,000,690 wounds was analyzed.

Academic Wound Center data from 2006 – 2009 was prospectively collected and retrospectively analyzed. The data was generated from a 200-bed, community hospital-based wound care program staffed by three full-time wound program faculty employed by the non-Healogics affiliated University of Illinois hospital. A final sample of 2,578 wounds was analyzed.

Table 1. Modified intent-to-treat – comprehensive healing rates

	2014 – 2015	2006 – 2009
Total # healed wounds	498,113	1,388
Total # wounds	1,006,690	2,578
% healed at population level	49.5	53.8
Exclude – # active at study conclusion	99,301	75
% of total	9.9	2.9
# remaining wounds	907,389	2,503
% healed at level	54.9	55.5
Exclude – # without wound documented	4,080	63
% of total	0.4	2.4
# remaining wounds	903,309	2,440
% healed at level	55.1	56.9
Exclude – # consult and with days first to last assessment <= 7 days	236,018	652
% of total	23.4	25.3
Final – # remaining wounds	667,291	1,788
Comprehensive healing rate (%)	74.6	77.6

Table 2. Breaking down the comprehensive healing rate to traditional healing rate

	2014 – 2015	2006 – 2009
Total # healed wounds	498,113	1,388
Total # wounds	1,006,690	2,578
Comprehensive healing rate (%)	74.6	77.6
Exclude – # wounds patients that died	15,867	35
% of total	1.6	1.4
# remaining wounds	651,424	1,753
% healed at level	76.5	79.2
Exclude – # wounds patients that moved	5,520	4
% of total	0.6	0.2
# remaining wounds	645,904	1,749
% healed at level	77.1	79.4
Exclude # wounds patients that transferred providers	24,436	34
% of total	2.4	1.3
# remaining wounds	621,468	1,715
% healed at level	80.2	80.9
Exclude – # wounds patients that transferred facility	66,776	48
% of total	6.6	1.9
# remaining wounds	554,692	1,667
% healed at level	89.8	83.3
Exclude – # wounds patients lost to follow-up	11,771	82
% of total	1.2	3.2
# remaining wounds	542,921	1,585
% healed at level	91.7	87.8
Exclude – # wounds patients that underwent amputation	4,455	47
% of total	0.4	1.8
# remaining wounds	538,466	1,538
% healed at level	92.5	90.2
Exclude # wounds patients converted palliative	1,149	109
% of total	0.1	4.2
Final – # remaining wounds	538,352	1,429
Traditional healing rate (%)	92.5	97.1

Results

Table 1 displays the findings of the modified intent-to-treat analysis to measure the comprehensive healing rate. Excluding wounds currently in active treatment, no wound documented and consultations, the comprehensive healing rate for the Healogics sample was 74.6 percent, compared to 77.6 percent in the academic wound care sample.

Table 2 displays a decomposition of the comprehensive healing rate relative to the standard healing rate in order to demonstrate how each exclusion impacts healing measures. Patients discharged to other providers/facilities and those who were lost to follow-up for other reasons (such as moving, financial and unknown) had the largest impact on the standard healing rate.

Conclusions

The findings of the study emphasize the importance of standardization and transparency in wound outcome reporting. However, while useful, until a standardized risk-adjustment methodology is applied, both the comprehensive and standard healing rates are necessary to understand the quality of care. Further, this study highlights the benefits gained through evidence-based standardized wound care. Despite a high degree of heterogeneity in the Healogics sample, through the application of consistent clinical protocol, care process, and technology, comprehensive healing rates comparable to those seen in the academic sample were achieved.

References

1. Fife Caroline E., Eckert Kristen A., and Carter Marissa J.. Advances in Wound Care. September 2017, ahead of print. <https://doi.org/10.1089/wound.2017.0743> – <http://online.liebertpub.com/doi/full/10.1089/wound.2017.0743>
2. Ennis, W. J., Hoffman, R. A., Gurtner, G. C., Kirsner, R. S. and Gordon, H. M. (2017), Wound healing outcomes: Using big data and a modified intent-to-treat method as a metric for reporting healing rates. *Wound Rep Reg*, 25: 665–672. doi:10.1111/wrr.12575 – <http://onlinelibrary.wiley.com/doi/10.1111/wrr.12575/full>